LED level meter driver, 5-point, VU scale

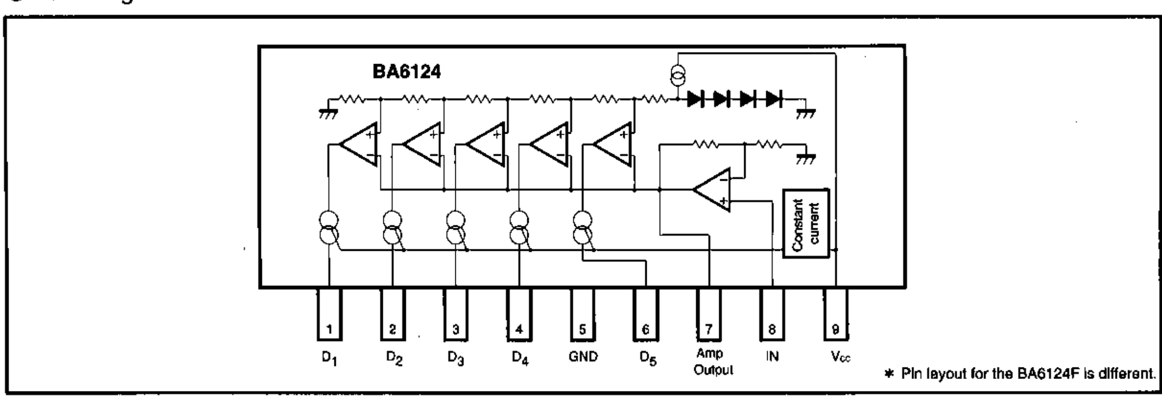
BA6124 / BA6124F

The BA6124 and BA6124F are driver ICs for LED VU level meters in stereo equipment and other display applications.
The ICs display the input level (range : −10dB to +6dB) on a 5-point, bar-type LED display.
The circuit includes a rectifier amplifier allowing direct AC input, and has constant-current outputs, so it can directly drive the LEDs without variations in LED current due to supply voltage fluctuations.

●Applications
VU meters, signal meters, and other display devices.

●Features
1) Rectifier amplifier allows either AC or DC input.
2) Constant-current outputs for constant LED current when the supply voltage fluctuates.
3) Built-in reference voltage means that power supply voltage fluctuations do not effect the display.
4) Wide operating voltage range (3.5V to 16V) for a wide range of applications.
5) Low PCB space requirements. Comes in a compact package and requires few external components.

●Block diagram



●Absolute maximum ratings (Ta = 25℃)

Parameter		Symbol	Limits	Unit
Supply voltage		Vcc	18	V
Power dissipation	BA6124	Pd	500*1	mW
	BA6124F		300*2	
Operating temperature		Topr	−25~60	℃
Storage temperature		Tstg	−55~125	℃
Junction temperature		Tj	150	℃

*1 Reduced by 5mW for each increase in Ta of 1°C over 25°C.
*2 Reduced by 3mW for each increase in Ta of 1°C over 25°C.

●Electrical characteristics (unless otherwise specified Ta = 25℃, V_{CC} = 6.0V, and f = 1kHz)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement Circuit
Operating voltage range	V_{CC}	3.5	6	16	V	−	Fig.1
Quiescent current	I_Q	−	5	8	mA	V_{IN}=0V	Fig.1
Control level 1	V_{C1}	−11.5	−10	−8.5	dB	−	Fig.1
Control level 2	V_{C2}	−6	−5	−4	dB	−	Fig.1
Control level 3	V_{C3}	−	0	−	dB	Adjustment point	Fig.1
Control level 4	V_{C4}	2.5	3	3.5	dB	−	Fig.1
Control level 5	V_{C5}	5	6	7	dB	−	Fig.1
Sensitivity	V_{IN}	74	85	96	mV_{rms}	V_{C3} on level	Fig.1
LED current	I_{LED}	11	15	18.5	mA	−	Fig.1
Input bias current	I_{INO}	−	0.3	1.0	μA	−	Fig.1

●Measurement circuit

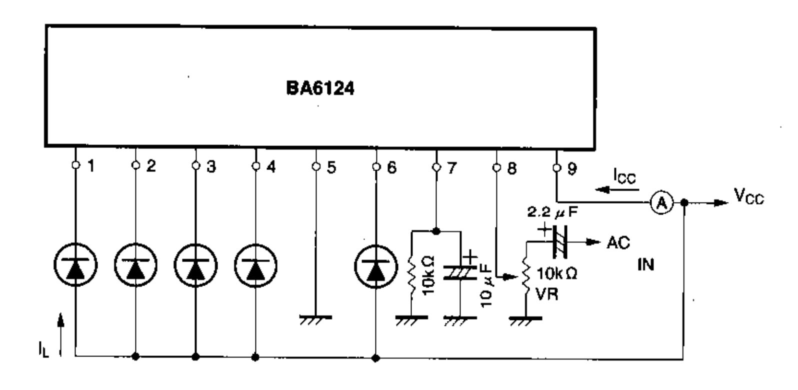


Fig. 1

●Electrical characteristics curves (Ta = 25℃)

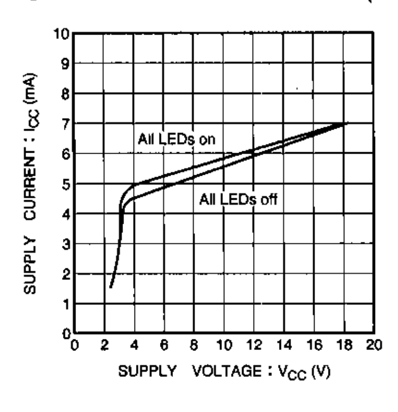


Fig. 2 Supply current vs. supply voltage

Fig. 3 LED drive current vs. supply voltage

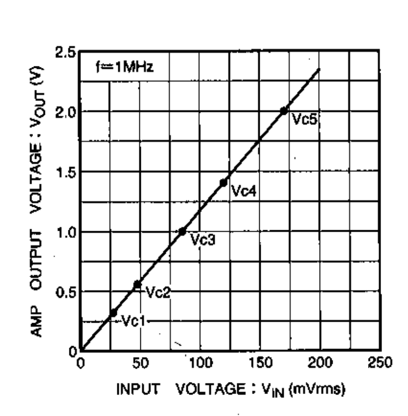


Fig. 4 Rectifier amplifier output voltage vs. input voltage

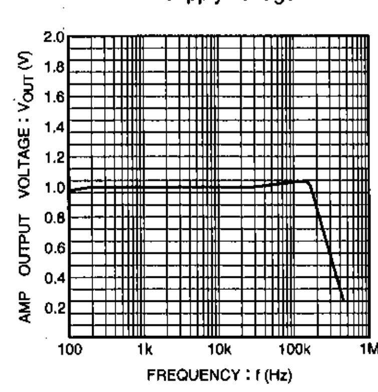


Fig. 5 Rectifier amplifier output voltage vs. frequency

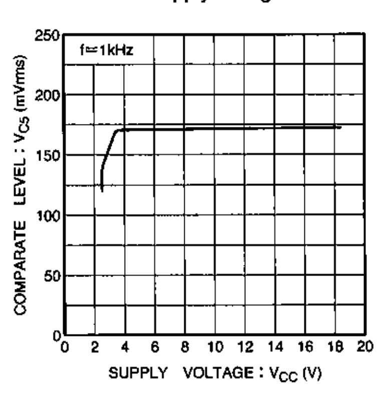


Fig. 6 Comparator level vs. supply voltage

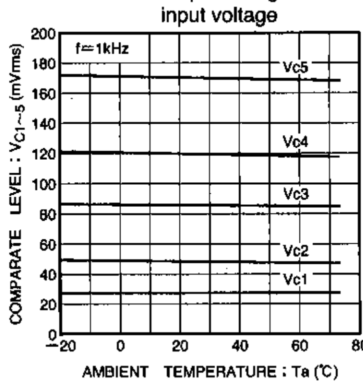


Fig. 7 Comparator level vs. ambient temperature

●Dimensions (Units: mm)

